

CLAIMS

1. A bone-marrow extraction and/or injection device (1) comprising:

- a grip zone (2); and
- 5 • a needle (10) presenting at least one side orifice (15);

the device being characterized in that said needle (10) is fastened onto a needle holder (30), and in that a protective sleeve (20) surrounds at least part of said
10 needle (10), said protective sleeve being mounted to move relative to said needle (10) between a closed position of said at least one side orifice (15) and an open position of said at least one side orifice (15), and said needle holder (30) including reception means (34) that are
15 suitable for co-operating with fastener means (22) of said protective sleeve (20) so as to hold said protective sleeve in the closed position or in the open position.

2. A device (1) according to claim 1, in which said
20 protective sleeve (20) is mounted to turn about the needle (10).

3. A device (1) according to claim 1 or claim 2, in which said protective sleeve (20) includes at least one side
25 opening (25) that is positioned substantially facing said at least one side orifice (15) of the needle (10) in the open position.

4. A device (1) according to claim 4, in which said
30 protective sleeve (20) comprises a first portion constituting a sheath (21) surrounding said needle, and a second portion comprising said fastener means (22).

5. A device (1) according to claim 4 or claim 5, in which
35 said fastener means (22) include at least one claw that is pivotally mounted, and that presents a manual actuation surface (23) and a projection (24).

AMENDED SHEET

6. A device (1) according to any one of claims 4 to 6, in which said reception means (34) of said needle holder (30) comprise at least one groove that is suitable for receiving at least one projection (24) of said fastener means (22) of said protective sleeve (20).

7. A device (1) according to any preceding claim, in which said device includes a mixing chamber (13) that is connected to said needle, and to at least one inlet channel (31) and at least one outlet channel (32).

8. A device (1) according to claim 7, in which said mixing chamber is provided in the needle holder (30).

9. A device (1) according to claim 7, in which said grip zone (2) comprises a handle, said mixing chamber being provided in said handle.

10. A device according to claim 7, including an add-on element (130) between said grip zone (2) and said needle holder (30), said mixing chamber being provided in said add-on element (130).

11. A bone-marrow extraction system, characterized in that it includes a device (1) according to any preceding claim.

12. An extraction system according to claim 11, in which said system includes a mixing chamber (13) that is connected to said needle (10) of the device, and to at least one inlet channel (31) and at least one outlet channel (32).

13. An extraction system according to claim 11 or claim 12, in which an inlet channel (31) is connected to a source (40) of anticoagulant.

AMENDED SHEET

14. An extraction system according to any one of claims 11 to 13, in which an outlet channel (32) is connected to a bone-marrow collection vessel (50).

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15. An extraction system according to any one of claims 11 to 14, in which said system includes suction means connected at least to said needle (10).

10 16. An extraction system according to claim 15, in which said suction means (60) comprise a vacuum pump.

15 17. An extraction system according to claim 15 or claim 16, in which said suction means (60) are controlled by control means (90), such as a pedal that is actuated by the user.

20 18. An extraction system according to any one of claims 11 to 17, in which said inlet channel (31) projects into the mixing chamber (13) and towards said outlet channel (32), so as to create a Venturi effect.

25 19. An extraction system according to any one of claims 11 to 18, in which said system includes a timer device (80) for setting the duration of the bone-marrow suction stages.

30 20. A bone-marrow injection system, characterized in that it includes a device (1) according to any one of claims 1 to 10.

35 21. An injection system according to claim 20, in which said device (1) is connected to a bone-marrow reservoir, said reservoir being connected to dispenser means.

22. An injection system according to claim 20 or claim 21, in which said dispenser means comprise a pump, such

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as a syringe with an electrically-driven plunger, or a CO₂ pump.

23. An extraction and/or injection system according to
5 any one of claims 11 to 22, in which said system is
packaged in sterile manner.

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